



## Reaching Out to Medical Examiners and Coroners to Improve Mortality Surveillance

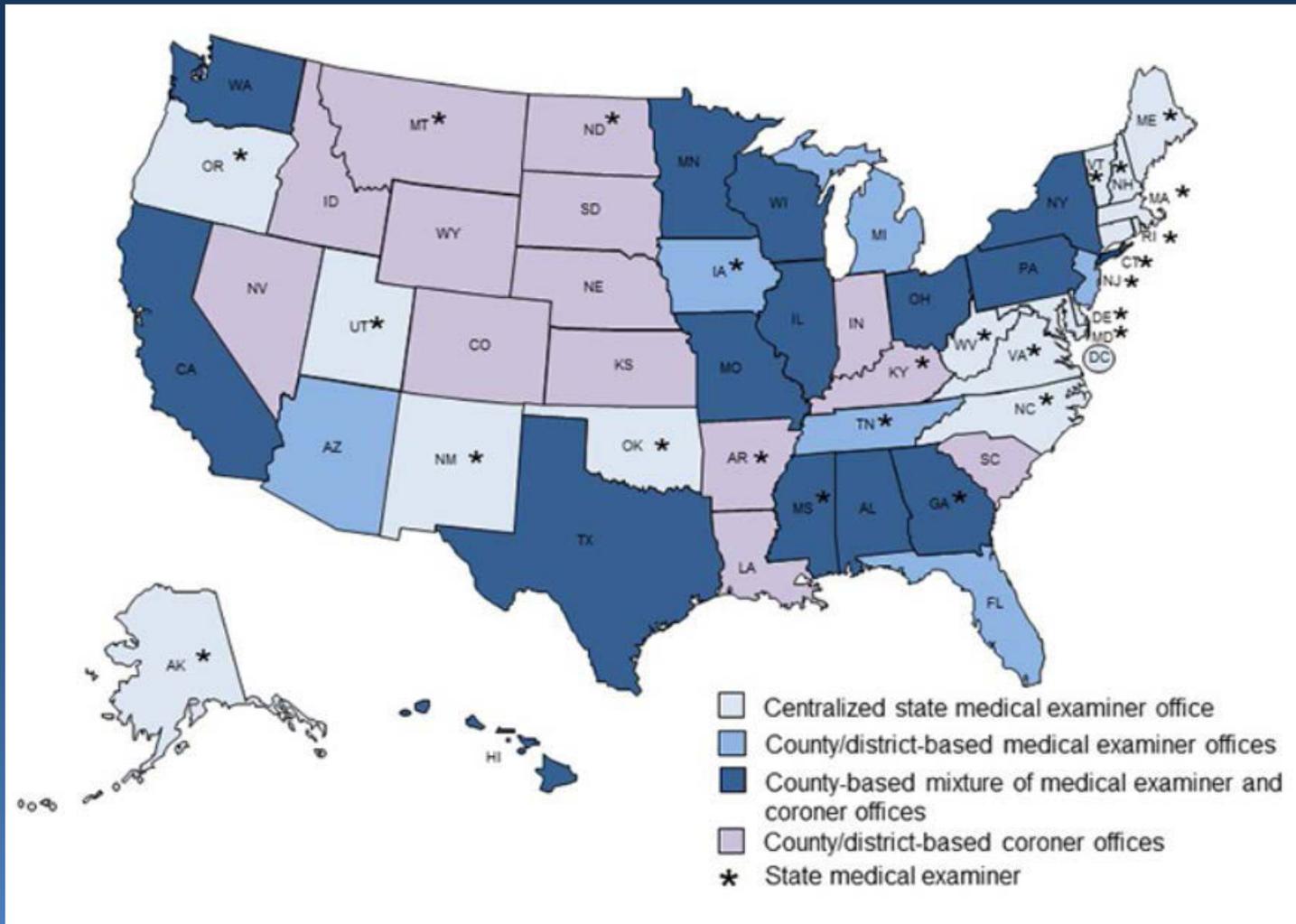
**Margaret Warner PhD**

**Division of Vital Statistics, Mortality Statistics Branch**

Board of Scientific Counselors

September 16, 2016

# Medical Death Investigation Systems



Source: CDC Public Health Law Program, Coroner/Medical Examiner Laws, by State  
<http://www.cdc.gov/phlp/publications/coroner/death.html>

# Medical Death Investigation Systems

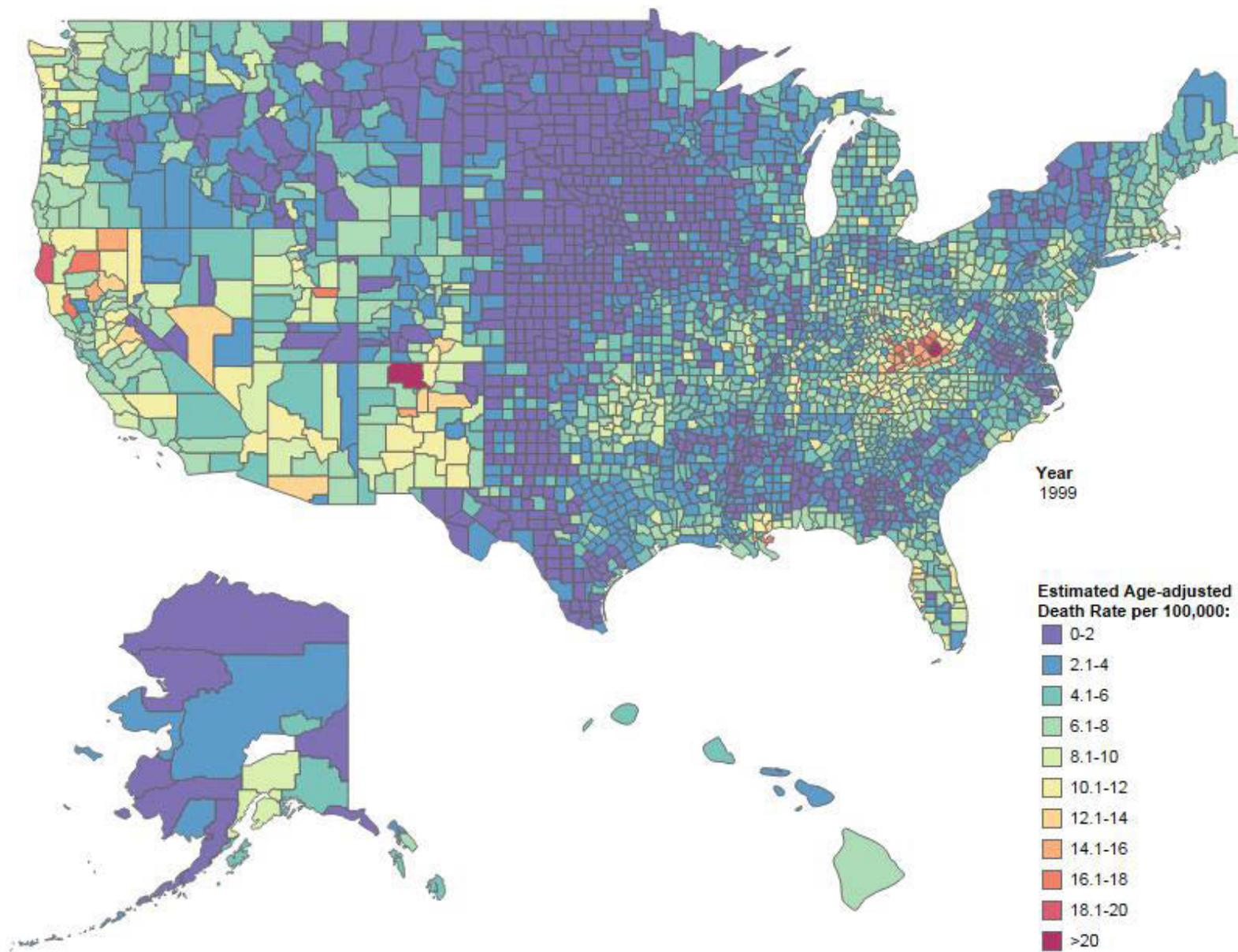
## Types of deaths investigated:

- Sudden unexpected deaths
- Injury deaths
  - Homicide, Suicide, Unintentional, Undetermined
- Unattended deaths
- Variation & restrictions by jurisdiction

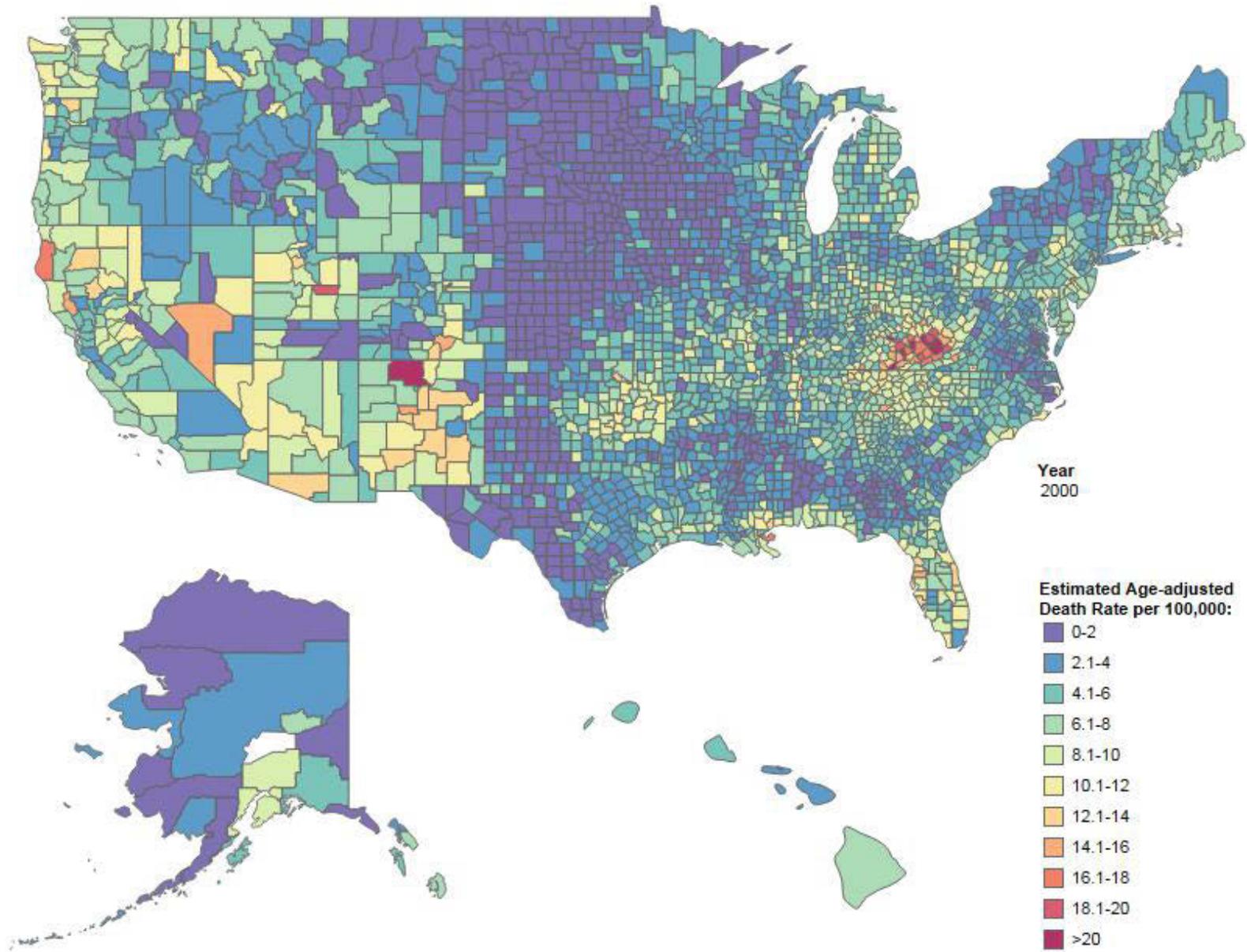
# Drug overdose death rates by county, 1999-2014

Source: Rossen LM, Khan D, Warner M, Trends and geographic patterns in drug-poisoning death rates in the US, 1999-2009, *Am J Prev Med* 2013.  
<http://blogs.cdc.gov/nchs-data-visualization/drug-poisoning-mortality/>

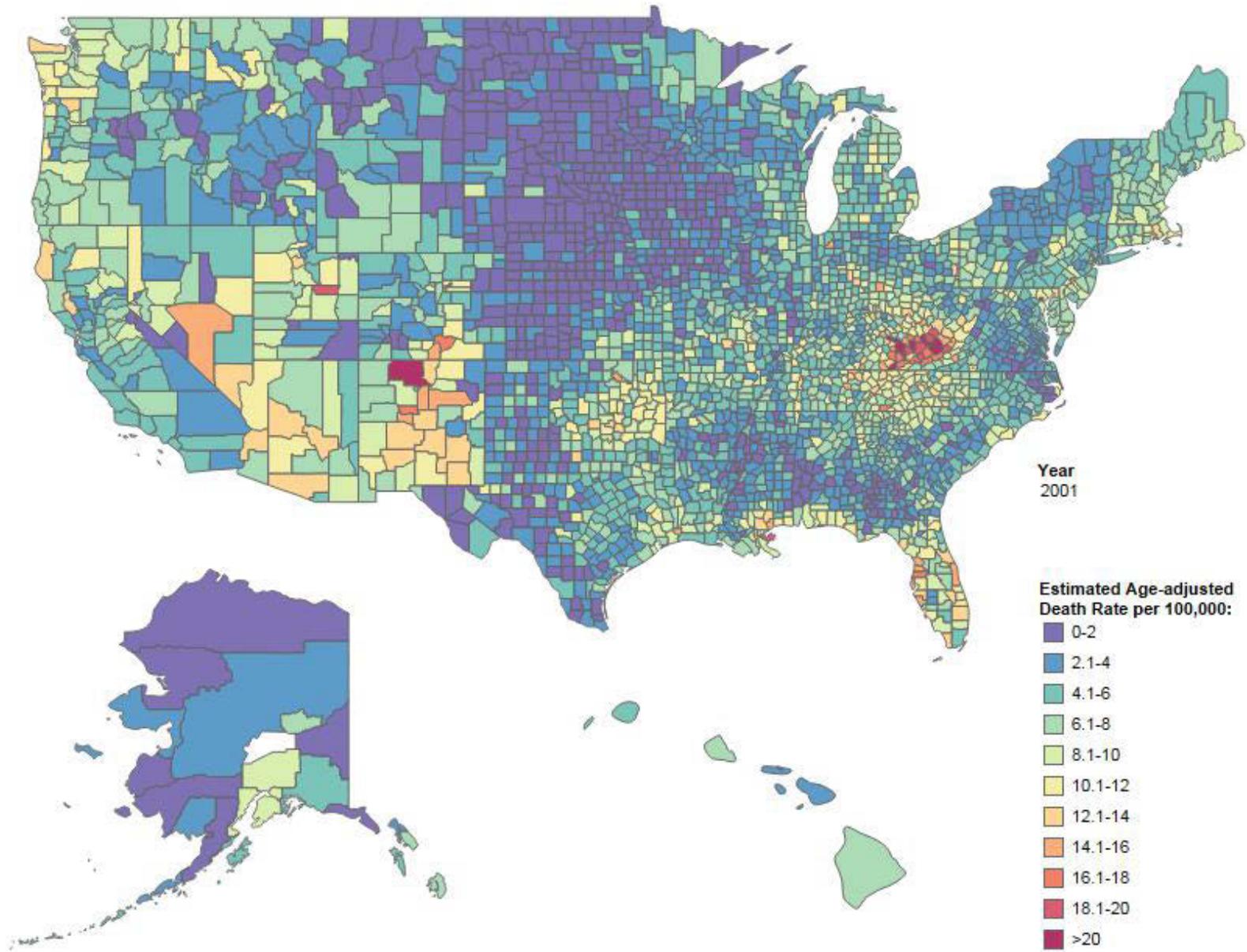
# Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 1999



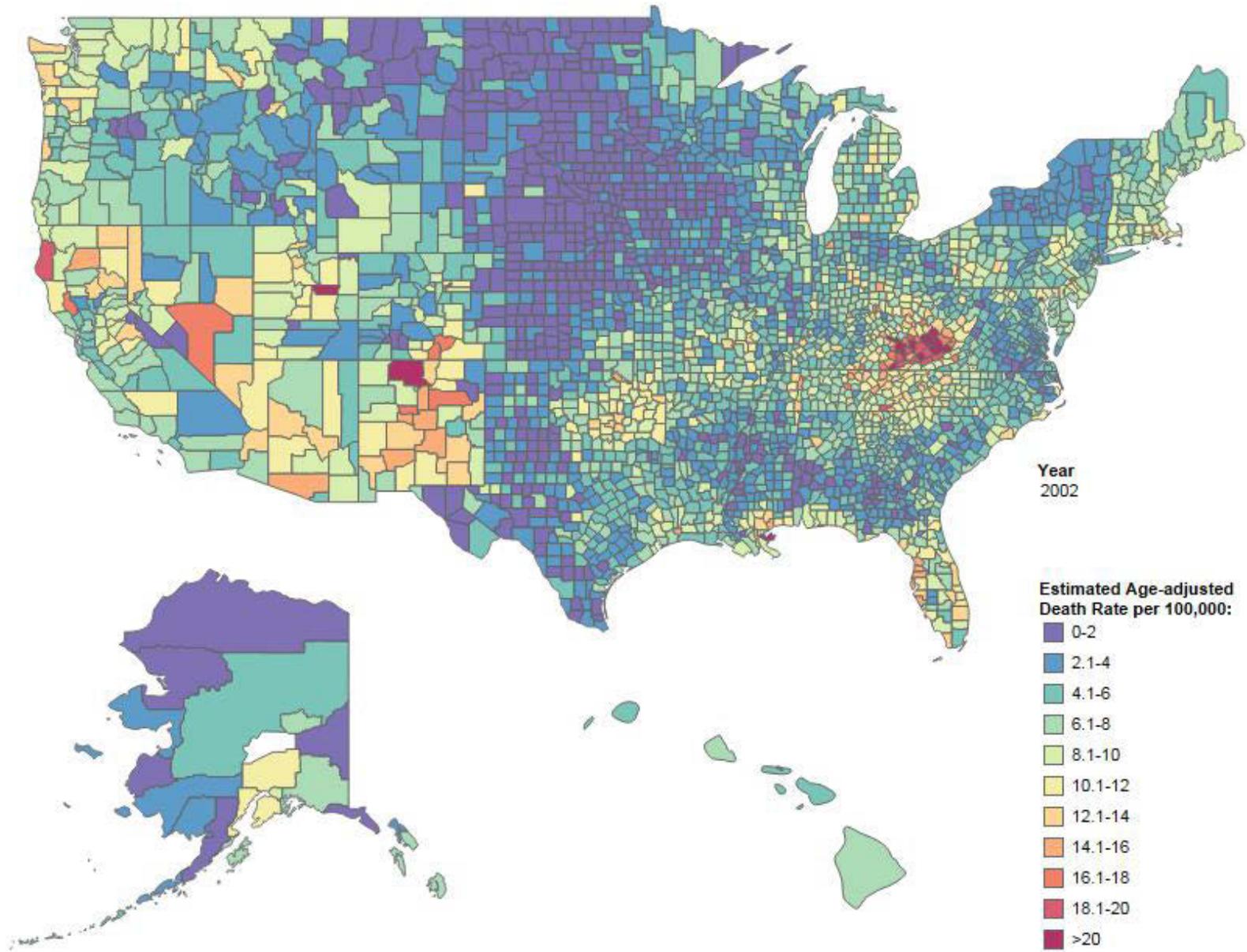
# Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 2000



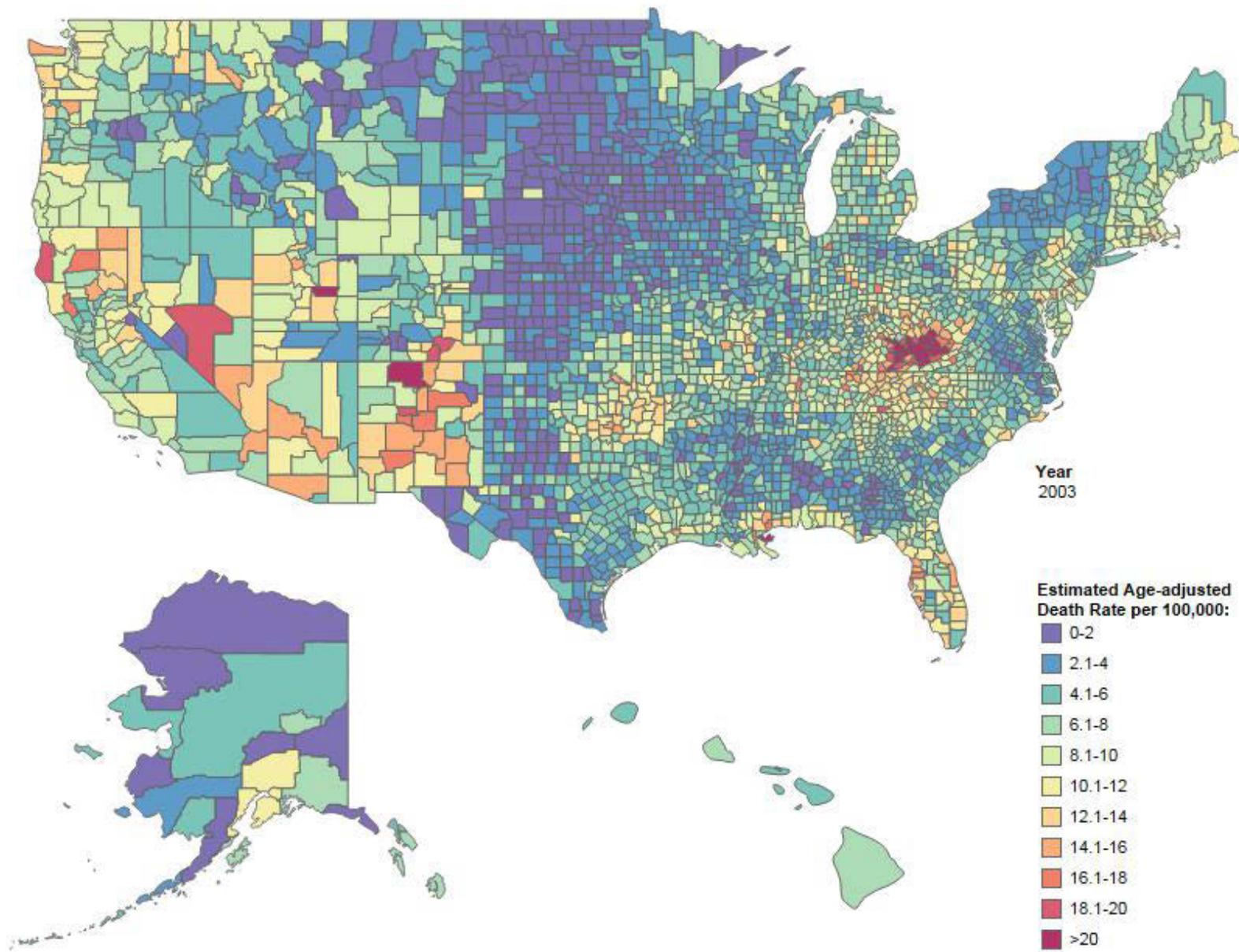
# Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 2001



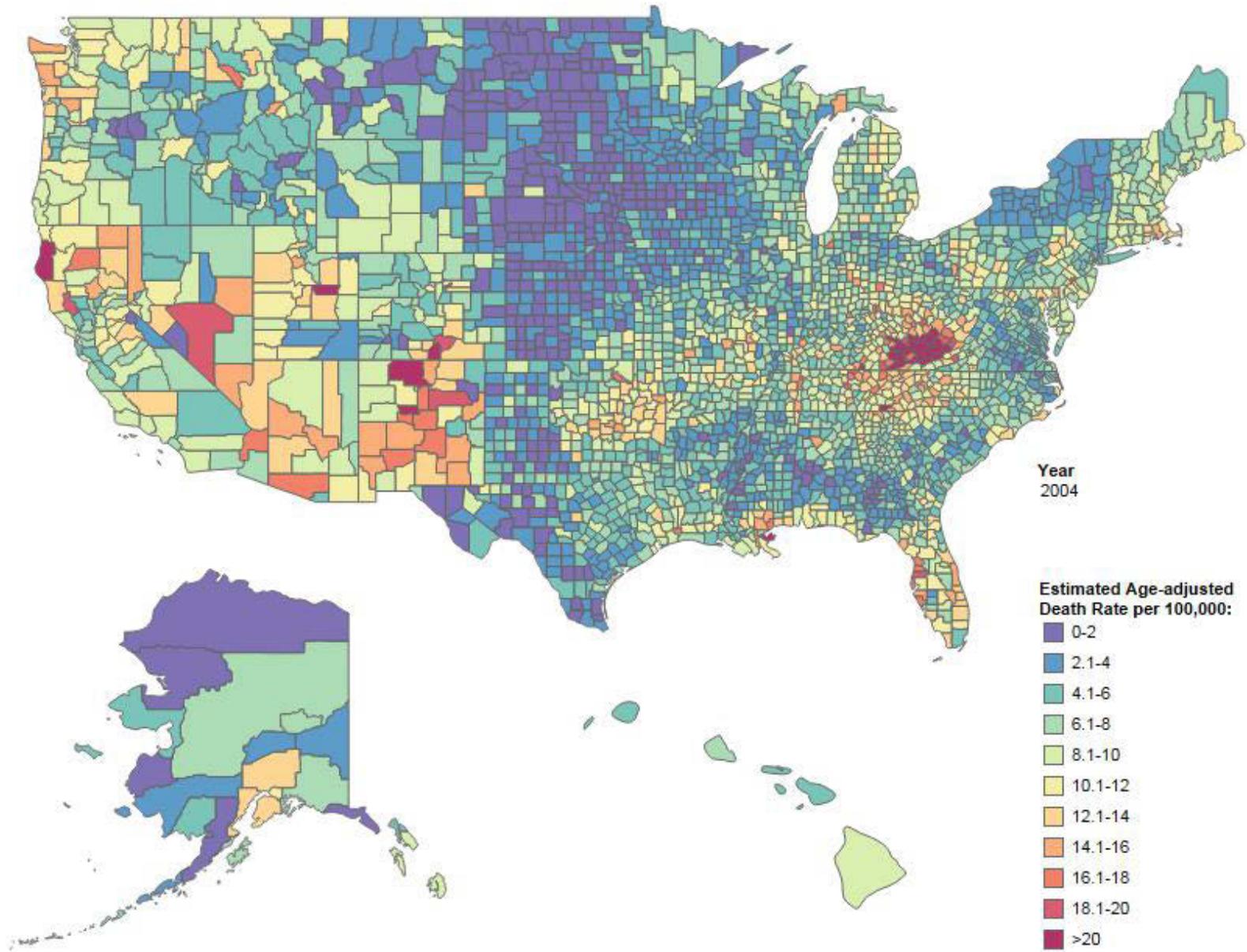
# Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 2002



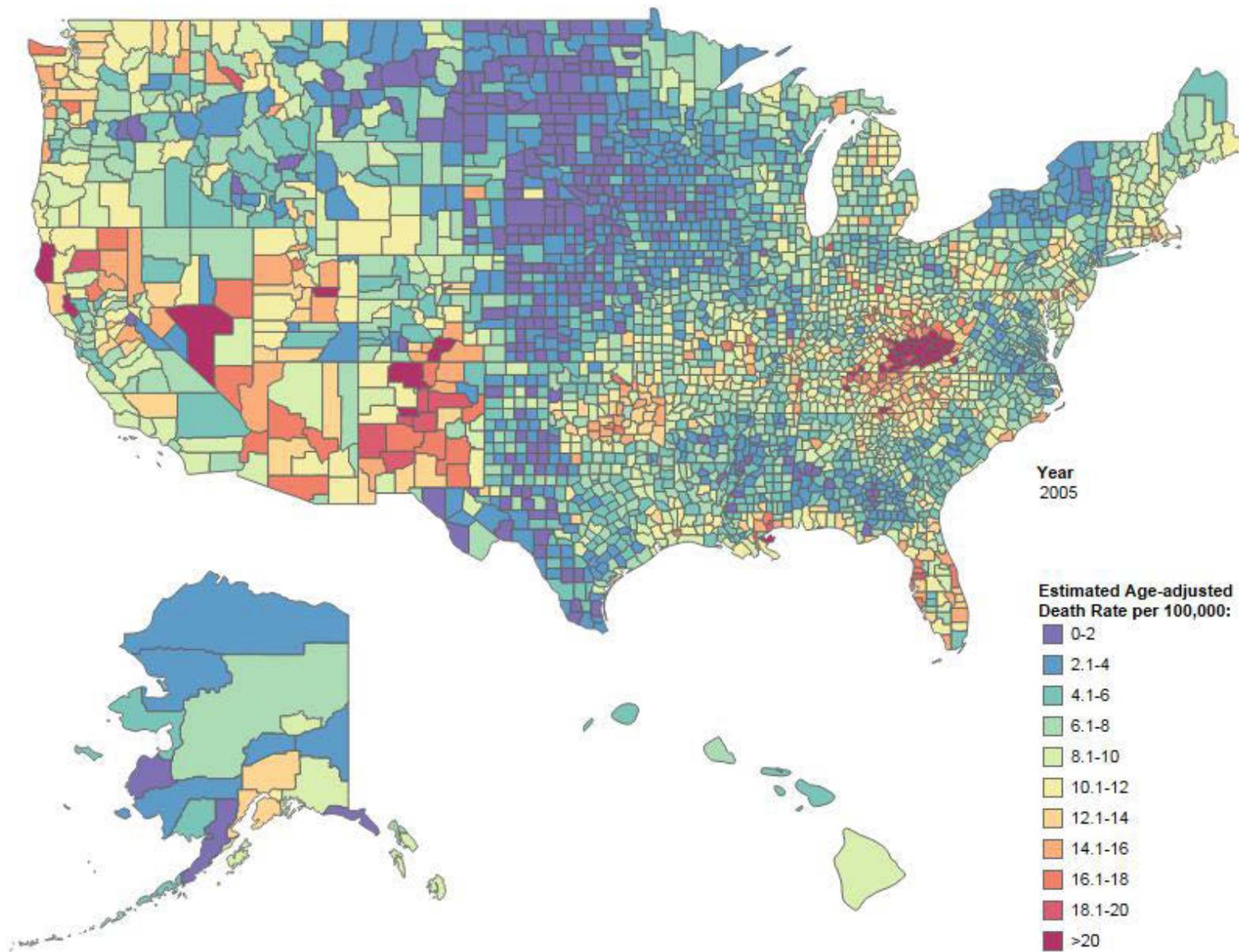
# Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 2003



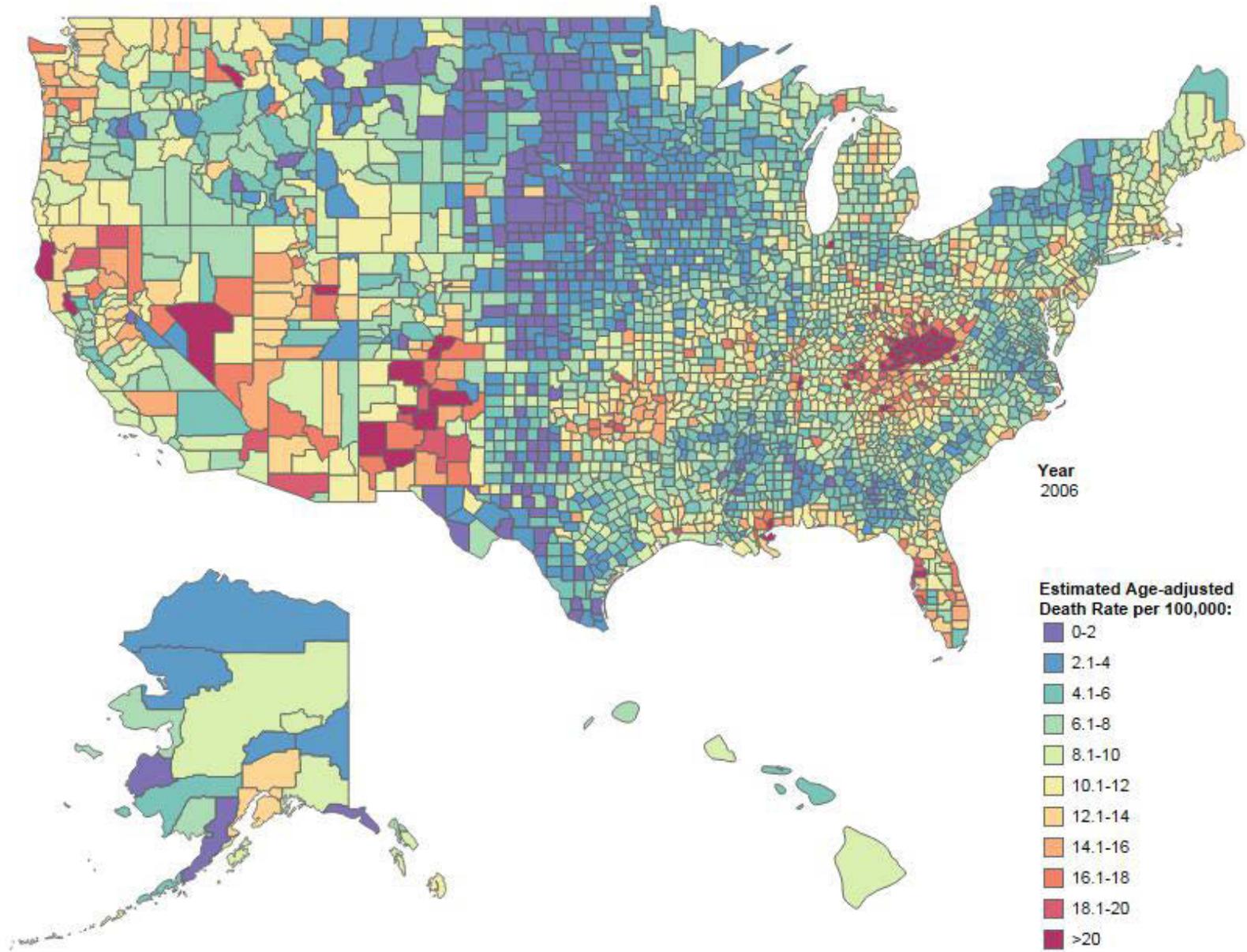
# Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 2004



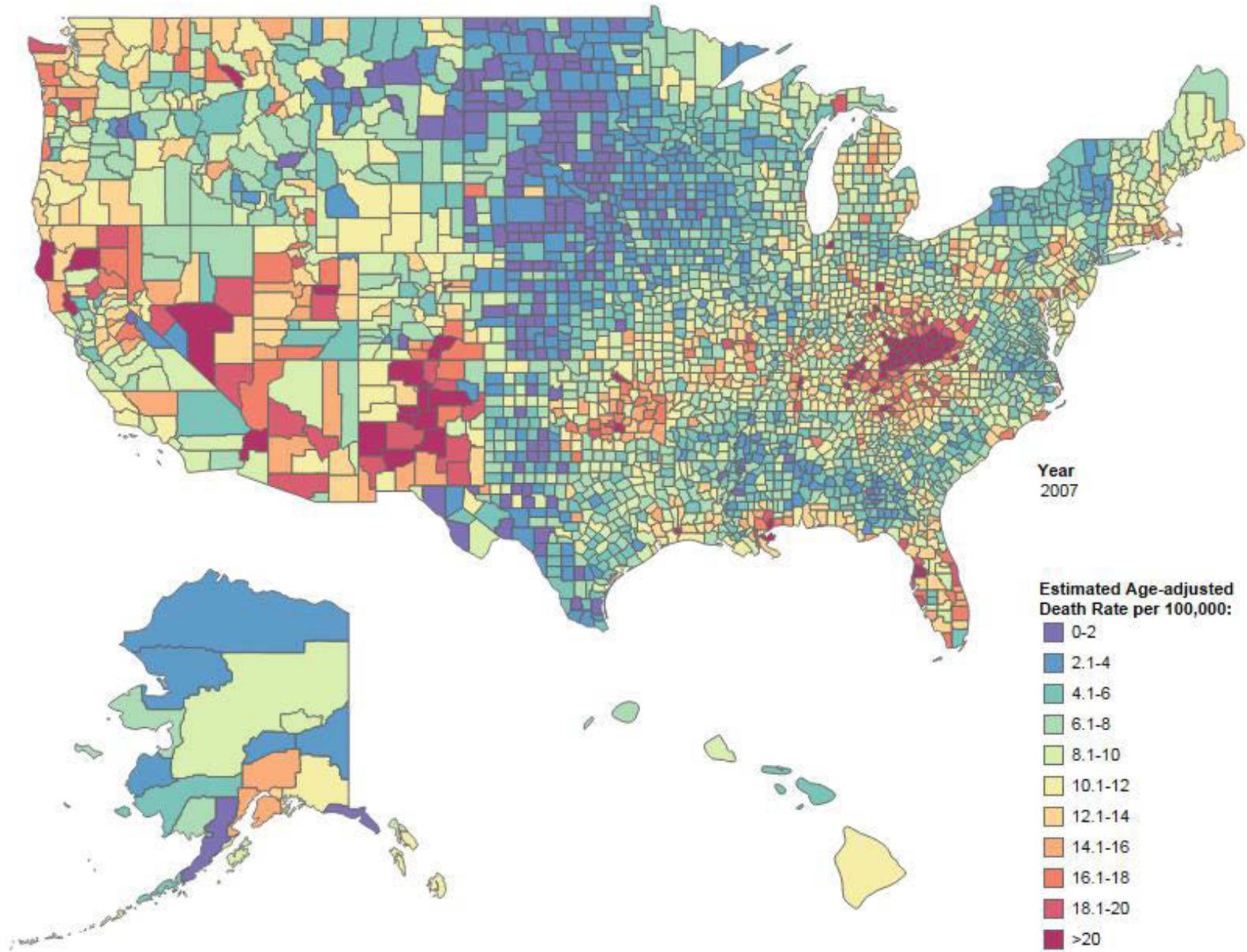
# Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 2005



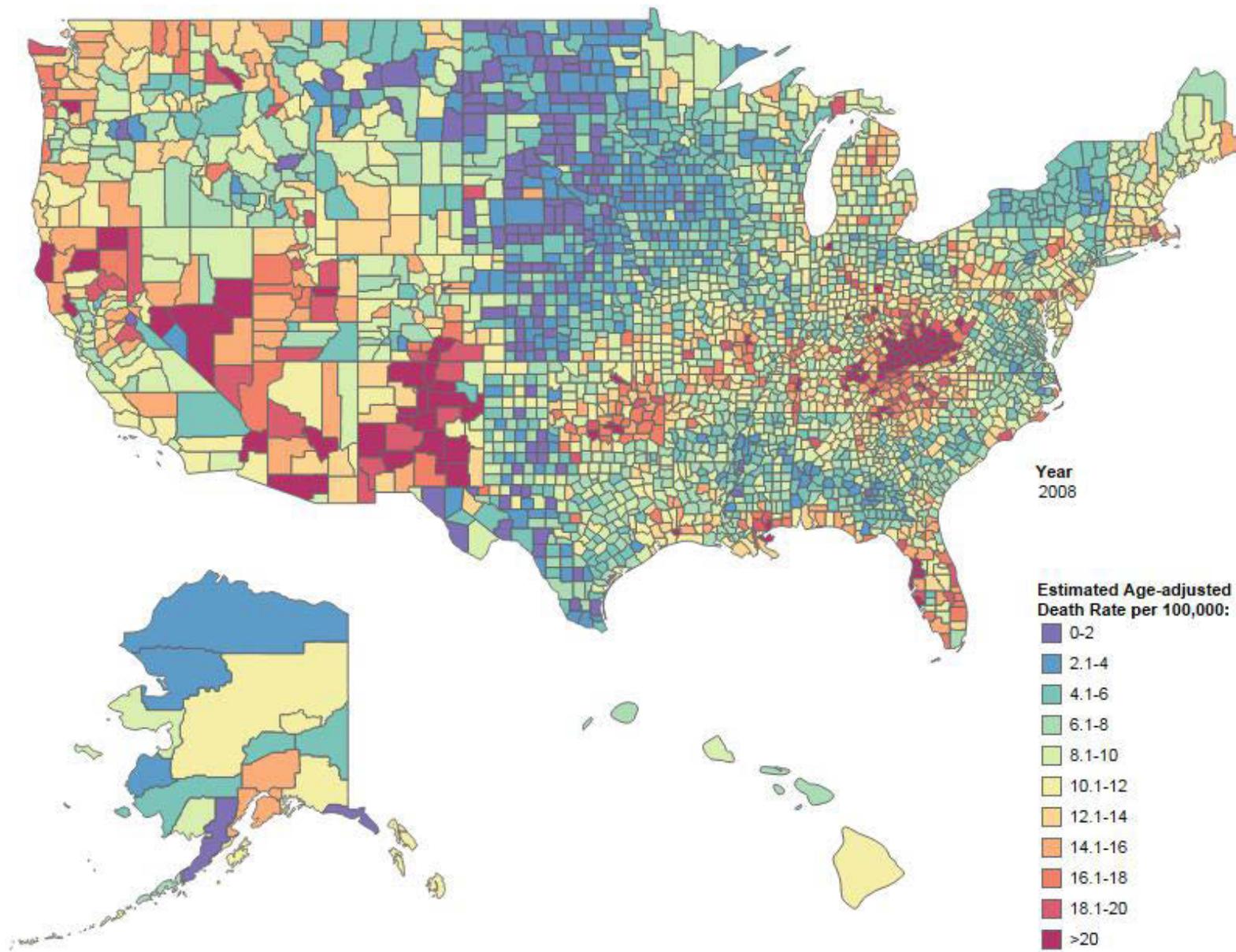
# Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 2006



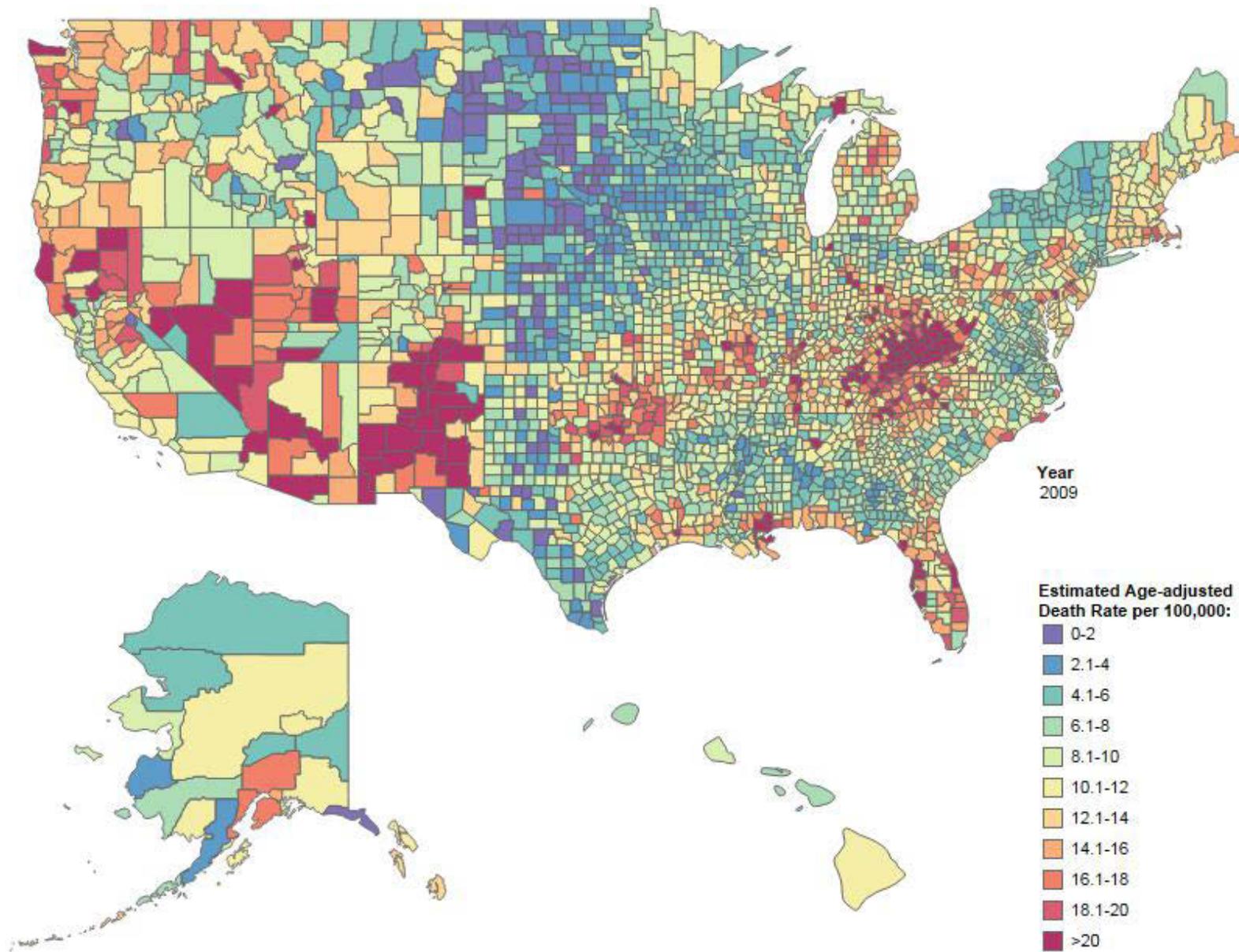
# Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 2007



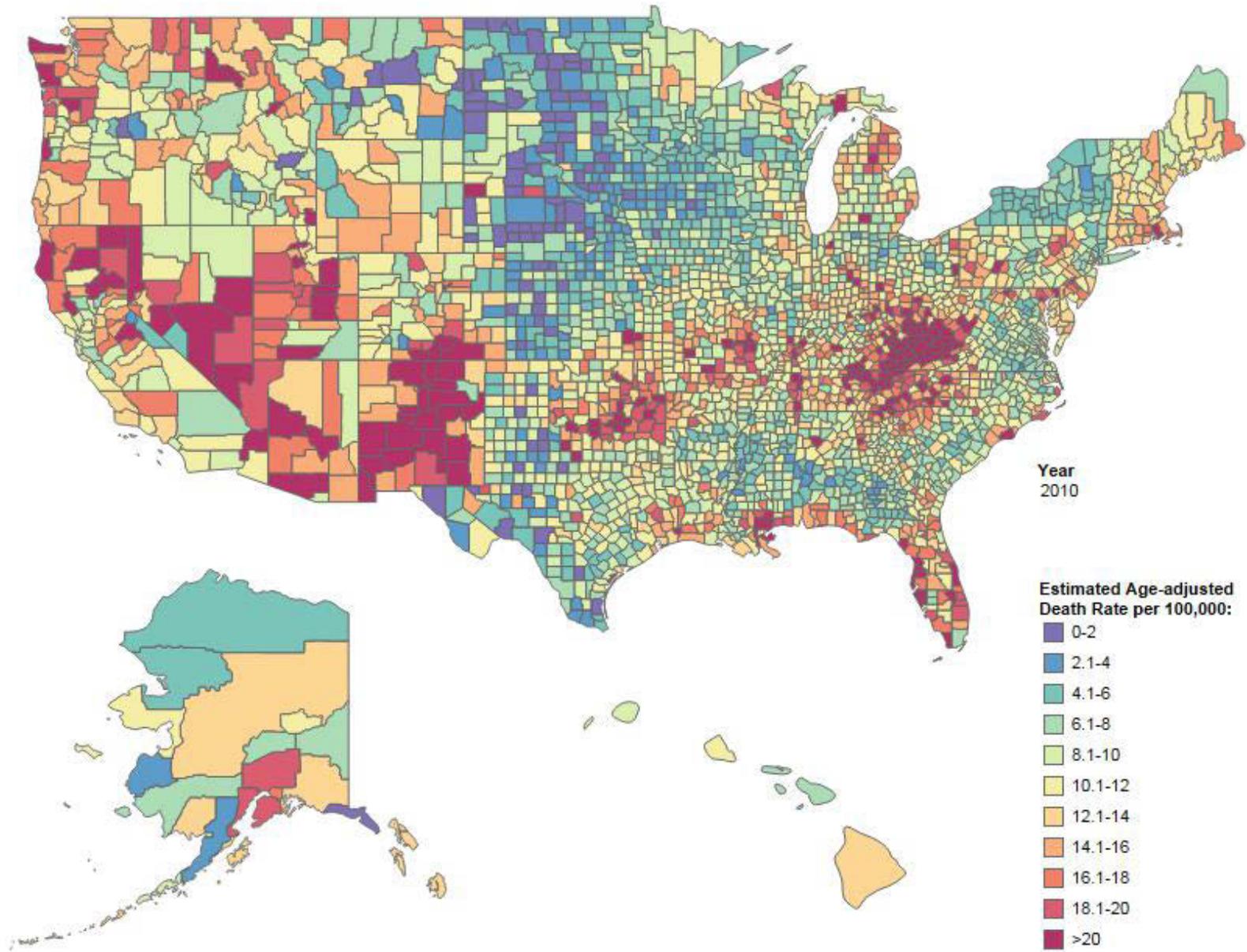
# Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 2008



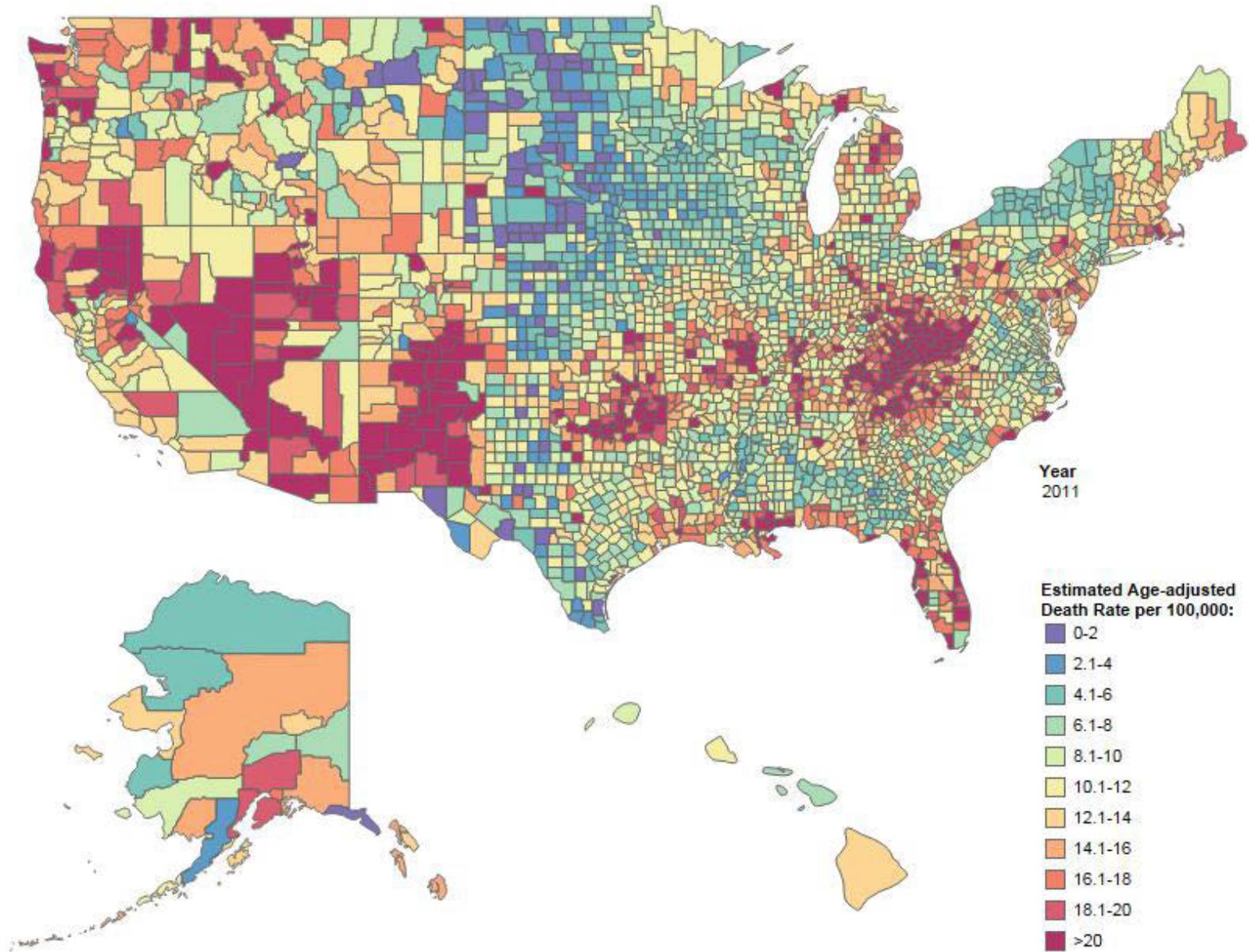
# Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 2009



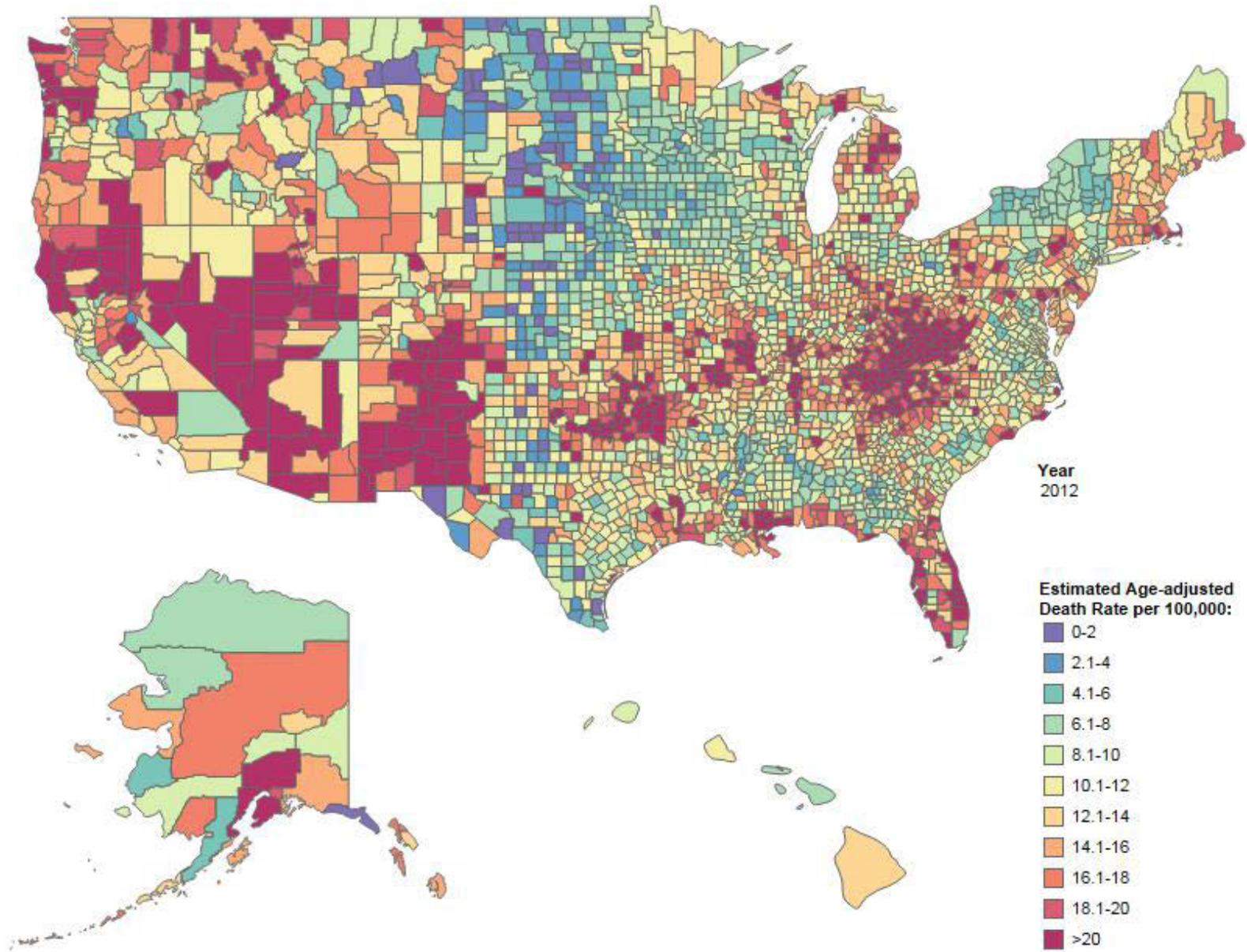
# Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 2010



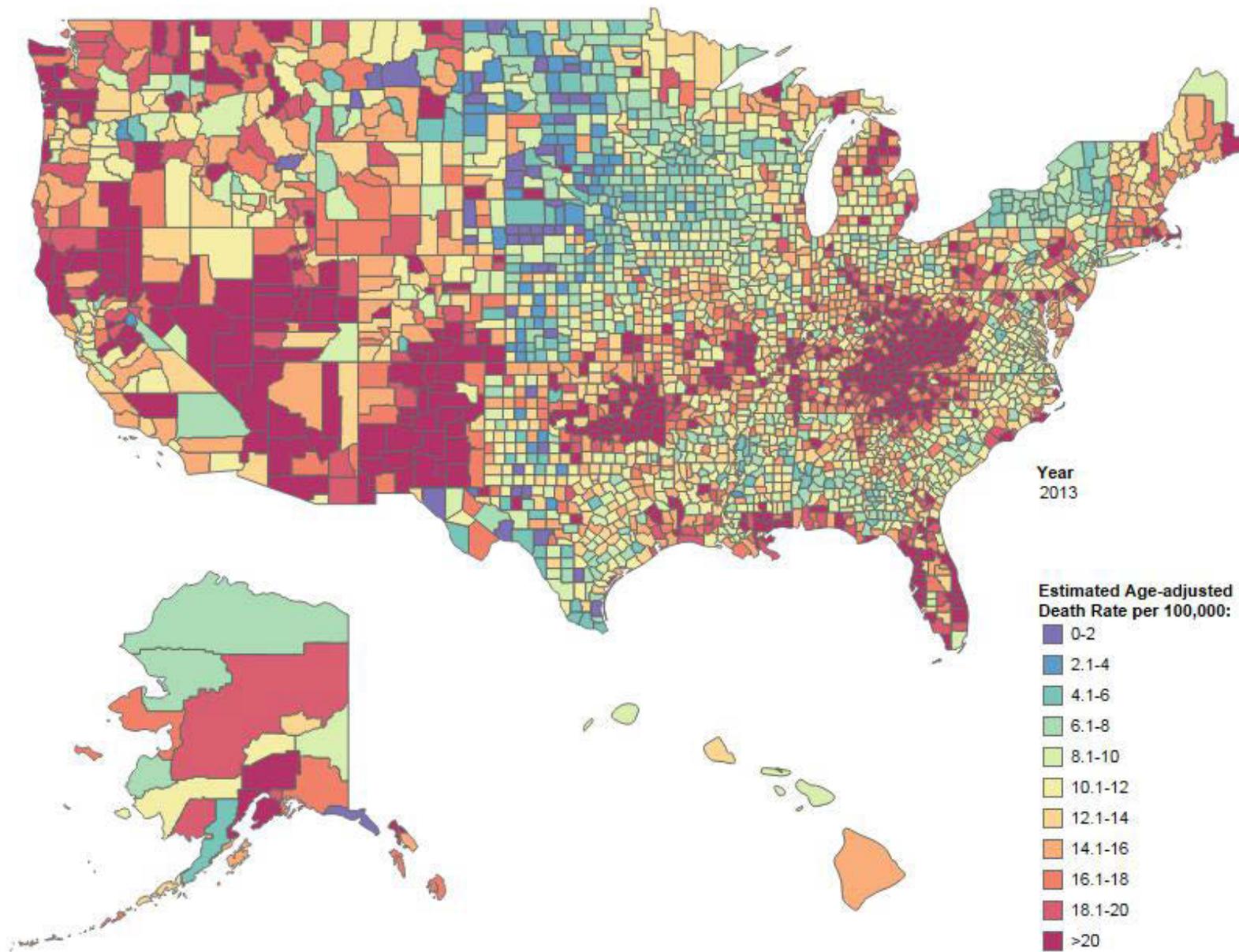
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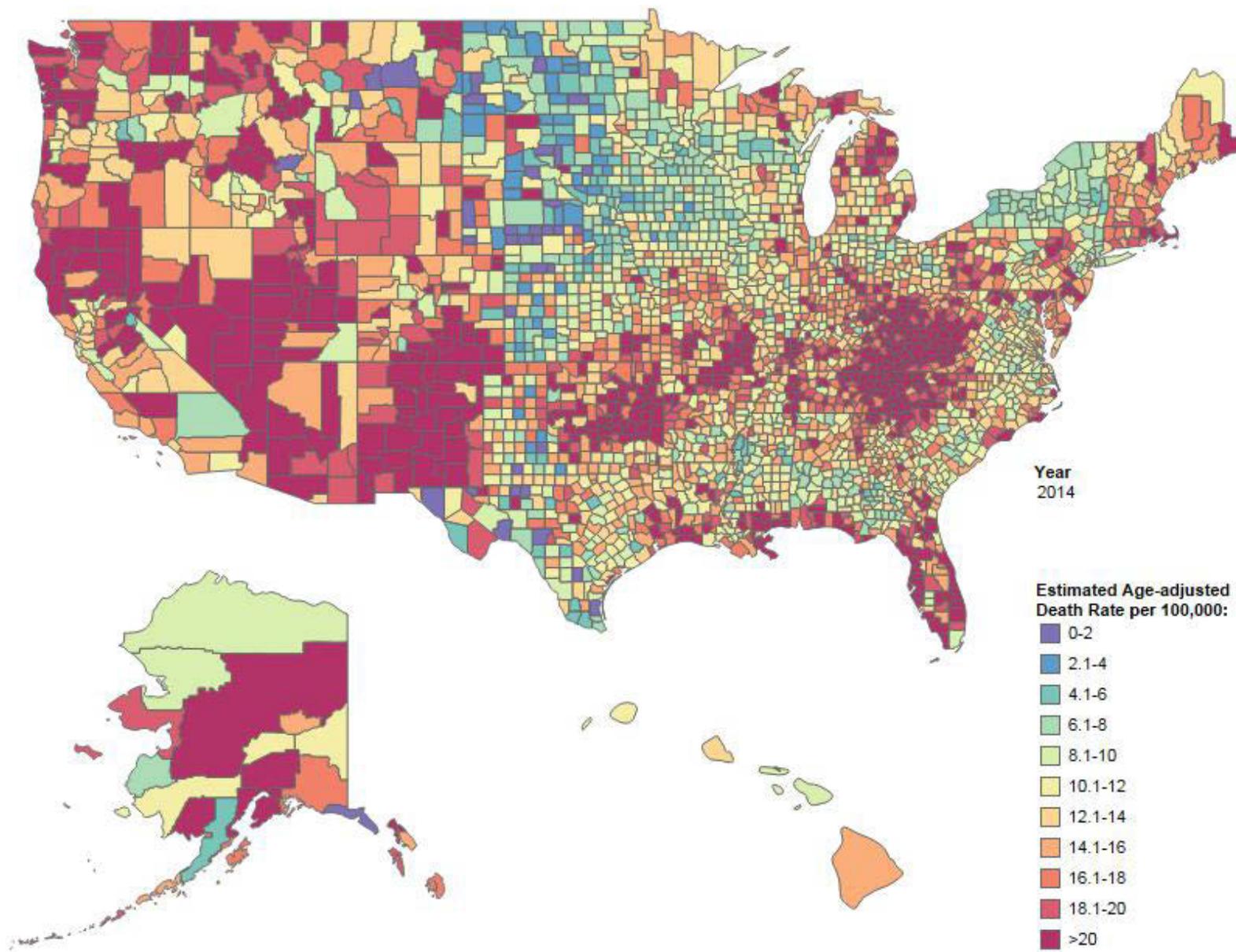
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# Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 2013



# Estimated Age-adjusted Death Rates§ for Drug Poisoning by County, United States: 2014



# National Association of Medical Examiners & American College of Medical Toxicology Position Paper: Opioid Deaths

## National Association of Medical Examiners Position Paper: Recommendations for the Investigation, Diagnosis, and Certification of Deaths Related to Opioid Drugs

Gregory G. Davis MD MSPH and the National Association of Medical Examiners and  
American College of Medical Toxicology Expert Panel on Evaluating and Reporting  
Opioid Deaths

**ABSTRACT:** The American College of Medical Toxicology and the National Association of Medical Examiners convened an expert panel to generate evidence-based recommendations for the practice of death investigation and autopsy, toxicological analysis, interpretation of toxicology findings, and death certification to improve the precision of death certificate data available for public health surveillance. The panel finds the following:

1. A complete autopsy is necessary for optimal interpretation of toxicology results, which must also be considered in the context of the circumstances surrounding death, medical history, and scene findings.
2. A complete scene investigation extends to reconciliation of prescription information and pill counts.
3. Blood, urine, and vitreous humor, when available, should be retained in all cases. Blood from the femoral vein is preferable to blood from other sites.
4. A toxicological panel should be comprehensive and include opioid and benzodiazepine analytes, as well as other potent depressant, stimulant, and anti-depressant medications.
5. Interpretation of postmortem opioid concentrations requires correlation with medical history, scene investigation, and autopsy findings.
6. If death is attributed to any drug or combination of drugs (whether as cause or contributing factor), the certifier should list all the responsible substances by generic name in the autopsy report and on the death certificate.
7. The best classification for manner of death in deaths due to the misuse or abuse of opioids without any apparent intent of self-harm is "accident." Reserve "undetermined" as the manner for the rare cases in which evidence exists to support more than one possible determination.

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an Associate Coroner/Medical  
Examiner at the Jefferson County  
Coroner/Medical Examiner Office  
and a Professor of Pathology  
at the University of Alabama at  
Birmingham.

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gdavis@uab.edu.

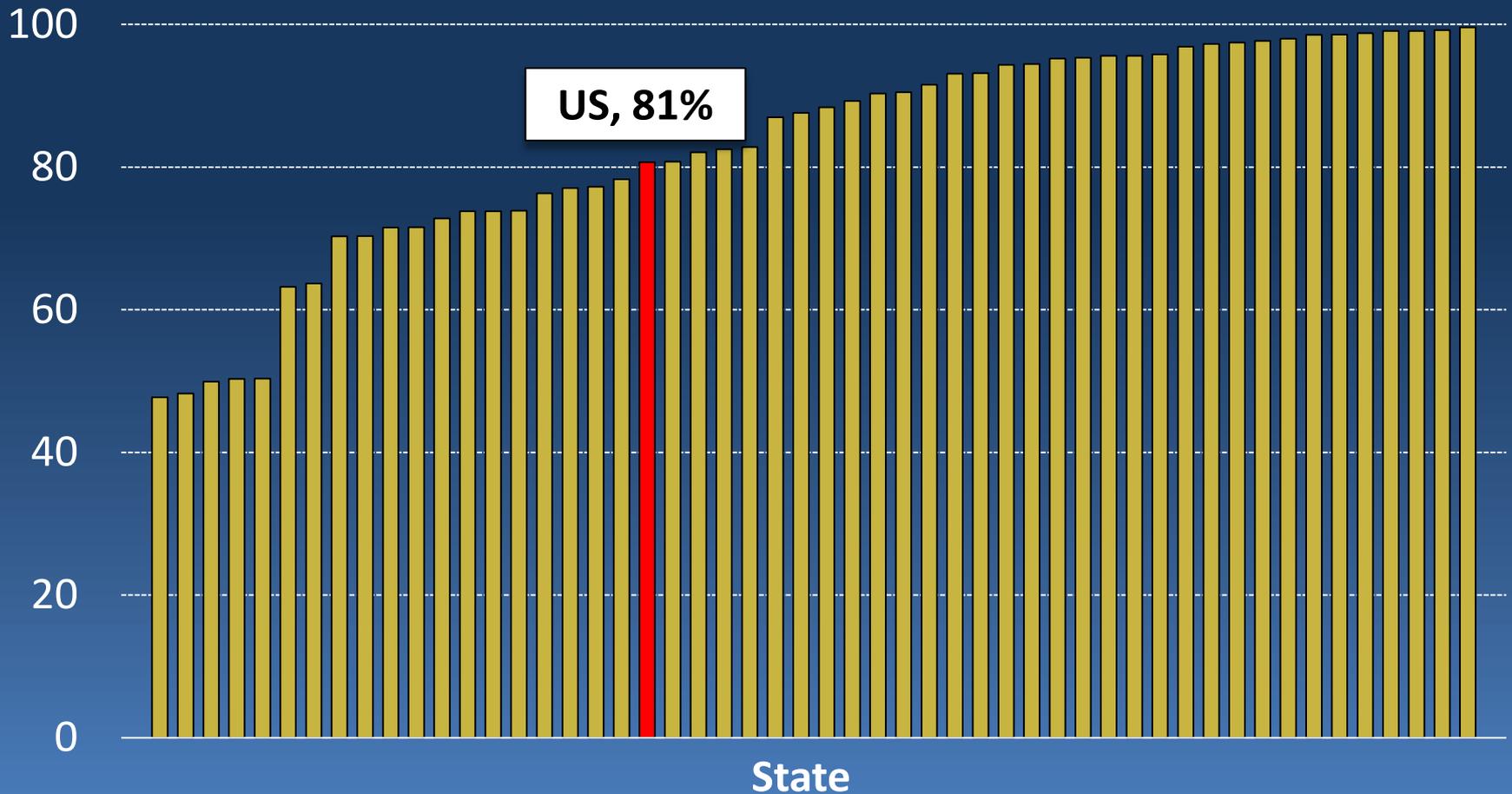
Acad Forensic Pathol  
2013 3 (1): 77-83

© 2013  
National Association of Medical Examiners



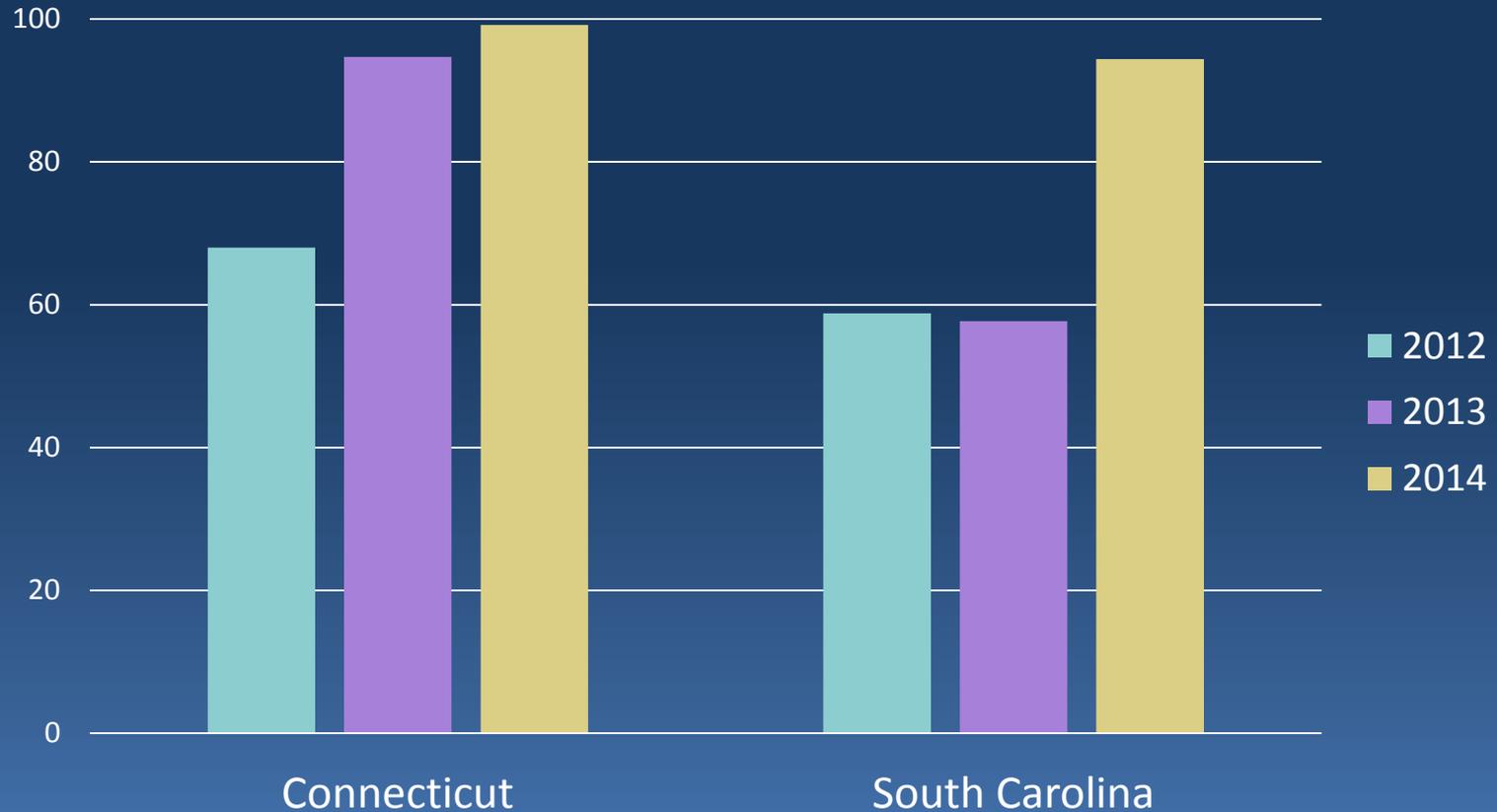
OPIOID DEATH POSITION PAPER

# Percent of drug overdose deaths with specific drugs identified by state, 2014



Source: CDC/NCHS, National Vital Statistics System, Mortality File.  
[http://www.cdc.gov/nchs/data/health\\_policy/unspecified\\_drugs\\_by\\_state\\_2013-2014.pdf](http://www.cdc.gov/nchs/data/health_policy/unspecified_drugs_by_state_2013-2014.pdf)

# Percent of drug overdose deaths with specific drugs identified by state, 2012-2014



Source: CDC/NCHS, National Vital Statistics System, Mortality File.

# Presentations and booths at professional meetings



National Association of  
Medical Examiners (NAME)



International Association of Coroners and  
Medical Examiners (IAC&ME)

## American Academy of Forensic Sciences

*A professional society dedicated to the application of science to the law*



State Medical Examiners and  
Coroners Organizations

## COUNCIL OF STATE AND TERRITORIAL EPIDEMIOLOGISTS

*Using the power of epidemiology to improve the public's health*



AMERICAN PUBLIC HEALTH ASSOCIATION

*For science. For action. For health.*

# Communication: From MDI to CDC

- Mortality data for prevention purposes including cause and circumstances of death, and risk and protective factors
- Mortality data for evaluation of programs
- Potential emerging public health and safety threats
- New science and technology in death investigation that may impact public health
- Seminars, reports, publications of interest

# Communication: From CDC to MDI

- Alerts on emerging public health threats
- Resources on death investigation (e.g., SUID)
- Guidance on filling out death certificates
- Services offered (e.g., detection of infectious diseases)
- Seminars, reports, publications of interest
- Continuing medical education opportunities
- Funding opportunities

# Interagency Coordination



**NIST** FORENSIC  
SCIENCES

WH: ONDCP, OSTP

HHS: NIH, FDA, SAMSHA

DOJ: NIJ, DEA, BJS

DOL: BLS, OSHA

DOT: NHTSA, FAA

# Interagency Coordination

## STRENGTHENING THE MEDICOLEGAL- DEATH-INVESTIGATION SYSTEM: IMPROVING DATA SYSTEMS

Executive Office of the President

National Science and Technology Council



September 2016

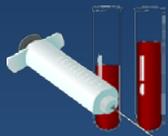
# Medicolegal Death Investigation Data



Death Scene



Autopsy



Toxicology



Pharmaceutical



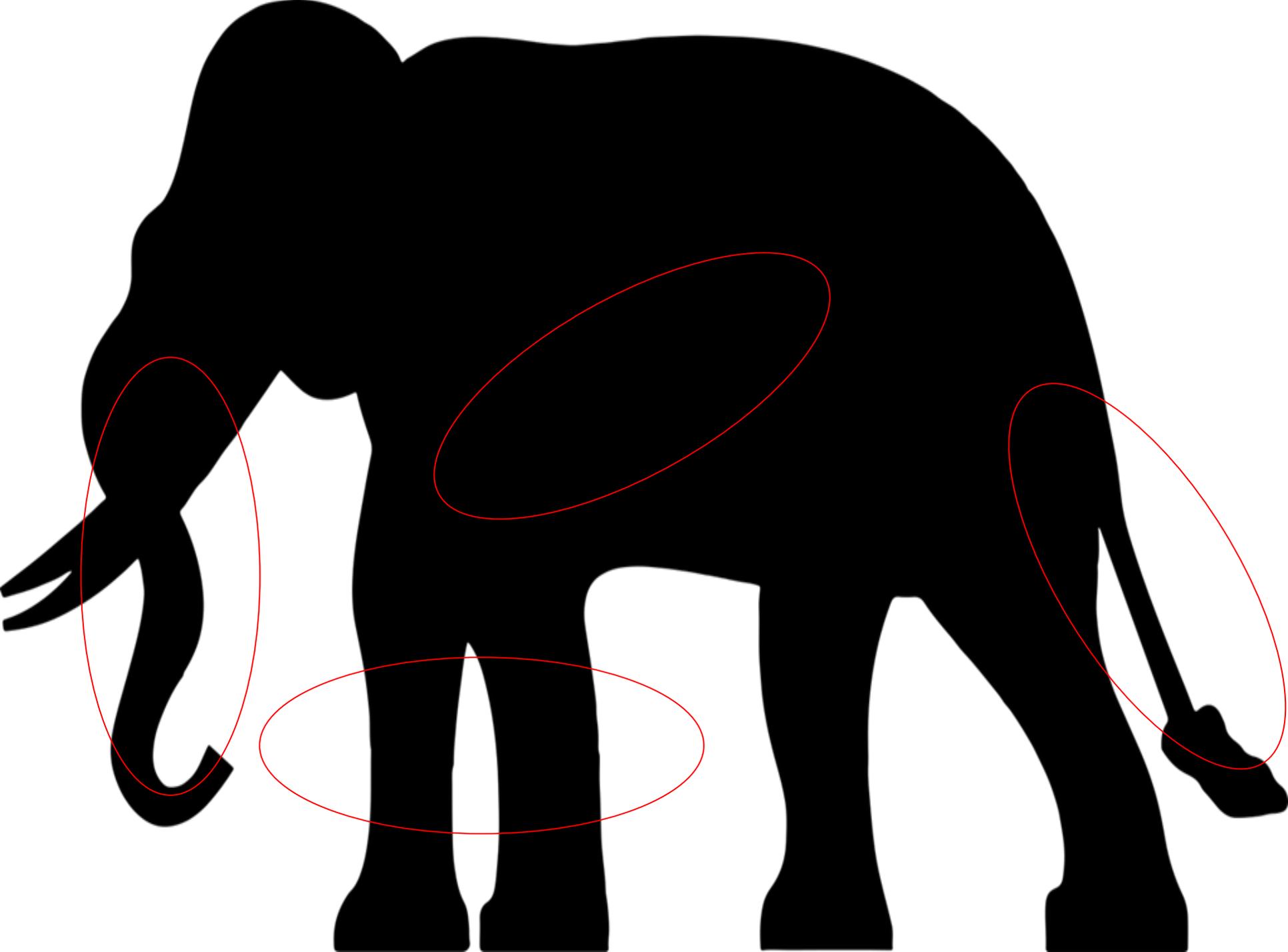
Medical Records

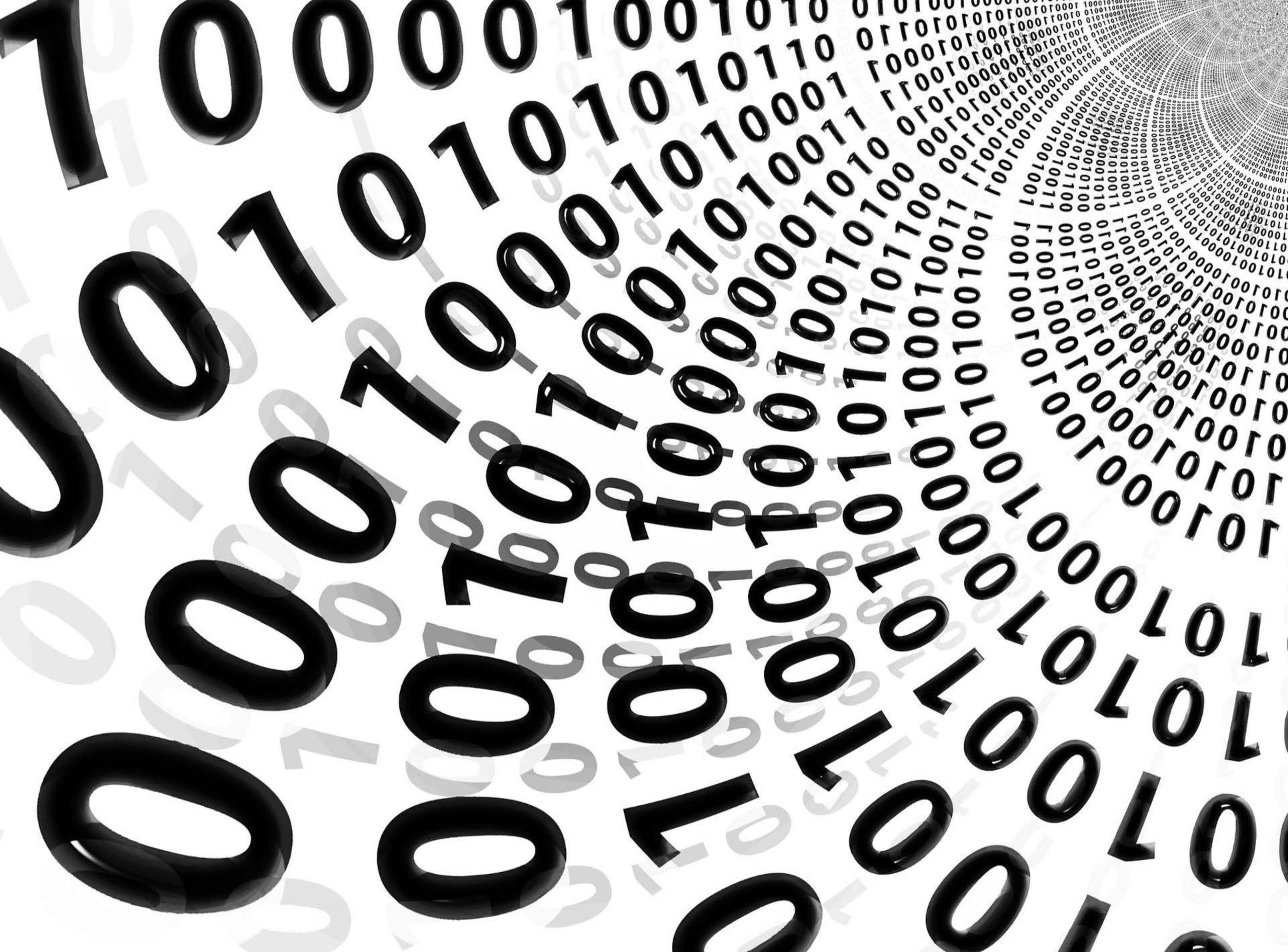


Medical  
Examiner/Coroner  
Case Management  
System

A detailed, multi-sectioned death certificate form. It includes fields for patient information, medical history, cause of death, and signatures. The form is titled 'DEATH CERTIFICATE' and contains various checkboxes and text boxes for recording medical and legal details.

Death  
Certificate





# US Standard Death Cert

## Demographic information

Completed by the funeral director using information from *the best qualified person*: spouse, parent, child, another relative, or other person who has knowledge of the facts

## Medical information

For natural causes, completed by attending physician, nurse practitioner, physician's assistant

For sudden and unexplained deaths, completed by medical examiner, coroner, Justice of the Peace

## Demographic information

U.S. STANDARD CERTIFICATE OF DEATH

LOCAL PLUID STATE PLUID

14. AGE LAST BIRTHDAY (Years) 15. UNDER 1 YEAR 16. UNDER 1 DAY 17. DATE OF BIRTH (Month, Day, Year) 18. SURVIVANCE (Dec and State or Foreign) (Country)

19. MARITAL STATUS (Date) 20. MARRIAGE (Date) 21. MARRIAGE (Date) 22. MARRIAGE (Date)

23. STREET AND NUMBER 24. APT. NO. 25. ZIP CODE 26. NEAREST CITY OR TOWN 27. NEAREST CITY OR TOWN

28. WIFE IN LAST MARRIAGE (Date) 29. MARRIAGE (Date) 30. MARRIAGE (Date) 31. MARRIAGE (Date)

32. FATHER'S NAME (Full, Middle, Last) 33. MOTHER'S NAME (Full, Middle, Last)

34. INFORMANT'S NAME 35. RELATIONSHIP TO DECEASED 36. MAILING ADDRESS (Street and Number, City, State, Zip Code)

37. PLACE OF DEATH (See instructions) 38. PLACE OF DEATH (See instructions)

39. DEATH OCCURRED IN A HOSPITAL 40. DEATH OCCURRED IN A HOSPITAL 41. DEATH OCCURRED IN A HOSPITAL

42. METHOD OF DEPOSITION 43. PLACE OF DEPOSITION (Name of cemetery, mortuary, other place)

44. LOCATION OF TOWN AND STATE 45. NAME AND COMPLETE ADDRESS OF FUNERAL FACILITY

46. NATURE OF FUNERAL SERVICE LICENSE OR OTHER PERMIT 47. LICENSE NUMBER (If known)

48. NAME AND COMPLETE ADDRESS OF PHYSICIAN 49. LICENSE NUMBER 50. NAME AND COMPLETE ADDRESS OF PHYSICIAN 51. LICENSE NUMBER

52. NATURE OF PHYSICIAN'S SERVICE (See instructions) 53. LICENSE NUMBER 54. NAME AND COMPLETE ADDRESS OF PHYSICIAN 55. LICENSE NUMBER

56. ACTUAL OR PRESUMED DATE OF DEATH 57. ACTUAL OR PRESUMED TIME OF DEATH 58. MEDICAL EXAMINER OR CORONER CONTACTED (Yes or No)

59. PART 1: Enter the immediate cause (See instructions and examples) 60. PART 2: Enter the underlying cause (See instructions and examples) 61. PART 3: Enter the immediate cause (See instructions and examples)

62. SEX AT BIRTH (Male or Female) 63. SEX AT DEATH (Male or Female) 64. SEX AT DEATH (Male or Female)

65. DID TOBACCO USE CONTRIBUTE TO DEATH? 66. IF FEMALE, WERE YOU PREGNANT AT TIME OF DEATH? 67. MANNER OF DEATH

68. TYPE OF DEATH 69. PLACE OF DEATH 70. PLACE OF DEATH

71. MARRIAGE (Date) 72. MARRIAGE (Date) 73. MARRIAGE (Date)

74. CERTIFIER (Check only one) 75. CERTIFIER (Check only one) 76. CERTIFIER (Check only one)

77. TITLE OF CERTIFIER 78. LICENSE NUMBER 79. DATE CERTIFIED (Month/Day/Year) 80. FOR REGISTRATION ONLY: DATE FILED (Month/Day/Year)

81. HIGHEST GRADE OF EDUCATION (See instructions) 82. HIGHEST GRADE OF EDUCATION (See instructions) 83. HIGHEST GRADE OF EDUCATION (See instructions)

84. HIGHEST GRADE OF EDUCATION (See instructions) 85. HIGHEST GRADE OF EDUCATION (See instructions) 86. HIGHEST GRADE OF EDUCATION (See instructions)

# **CDC/NCHS outreach to medical examiners and coroners**

Improving national mortality surveillance by:

- Promoting quality and consistency in death investigations and death certification
- Promoting collection, automation, and distribution of medicolegal death investigation data
- Facilitating information sharing among the medicolegal death investigation community
- Coordinating public health surveillance efforts

# Questions?

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301-458-4556